The Resource
for Environmental Education in Missouri

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Teaching Lewis & Clark

by: Shannon Cave
Public Involvement Coordinator,
Missouri Department of Conservation

The story of Lewis and Clark is an exciting and fun subject to study, and those are important factors motivating learning. That understates, of course: the story is epic, the characters are real, and the adventure passed close to many Missouri homes. Jefferson's assignment almost sounded like school: study, explore, record, measure, write and draw about the land, people, customs, languages, resources, climate and on and on.

Few have read the full Journals of Lewis and Clark, but their direct, un-spell-checked words make it easy to connect personally to them as people. That sets the stage to compare ourselves and world with theirs and to ask how we got here from there.

Critical choices on the expedition often meant life or death. Critical choices after the expedition created the world we have today. For conservationists and others, it's a great time to think about the critical judgments that will affect where we will be a hundred years from now.

Study William Clark side-by-side with his slave, York, who enjoyed many rights on the trip but who Clark kept in bondage for years afterward. Recall Lewis' words of kind intent to the Indians, and repeated tribal kindness to the Corps of Discovery – then contrast with the votes and policies our democracy produced a generation later. Imagine the endless plant and wildlife resources reported in 1804, and the extinction many would face a century or two hence. Envision a mighty river, nourishing a broad floodplain, bringing wealth to tribes and communities. Then look at it today, and consider its role in our future.

We commemorate and teach about Lewis and Clark because of the lessons they offer about human choices, determination, and commitment. By helping young people value their nation, its history and resources, the bicentennial years can set many hearts and minds on personal and public journeys of discovery, service and accomplishment. When all is considered, that is the safest path to continued wise use of, among many valuable things, Missouri's forest, fish and wildlife resources.

What's in it for you?

An entire issue devoted to
Lewis & Clark

Lewis & Clark in Missouri

by: Mark McCarthy
Information Coordinator,
Missouri Department of Conservation

The Presidential mission given to Lewis and Clark literally changed the world by doubling the size of the United States of America. But there was more to the adventure than the inevitable westward expansion. President Thomas Jefferson asked Meriwether Lewis and William Clark to be scientists, journalists and ambassadors of this new country.

May 27, 1804

"We camped on an Isd in the mouth of the Gasconade R., this river is 157 yards wide a butifull stream of clear water." Clark

"The country watered by this river, is generally broken, thickly covered with timber and tolerably fertile. the hills which border on the Missouri near the mouth of this river are about 300 feet high, containing excellent limestone in great abundance." Lewis

Only limited information was available about the land west of the Mississippi, and many of the country's best authorities considered the Louisiana Purchase a land of rainforests and dinosaurs. Captains Lewis and Clark saw no prehistoric areas or animals. Instead, without the assistance of maps, they found a land rich in natural resources and aesthetic beauty. Their mission included the charge to find and catalog new species of plants and animals. They documented coyotes, wolves, buffalo and many other animals that still exist today. They also reported animals now extinct or destined to become rare, such as the Carolina Parakeet (now extinct) and the giant Canada goose (once gone but now recovered in Missouri).

President Jefferson asked the Corps of Discovery to record their exploits. These journals provide a window on the past. We know the crew remained upbeat throughout the entire journey, despite hardships we can only imagine. They were young and excited about the mission and spent time detailing the things they had seen and done throughout the day. They drew pictures of fish, their boats, and some of the unusual things they saw along the way. One of their unusual sightings depicted the Manito painted on a cliff near Rocheport, Missouri. In the evenings they danced and sang to the fiddle playing of crew member Pierre Cruzatte. We know that Georges Drouillard was one of the most successful hunters on the trip. We know all this and more because of the journals, which allow us to feel as though we took the trip with them.

While knowing little about the geography, experts did know something about the people west of the Mississippi. St. Louis was a mixture of cultures and it was a major trading post along the river. Tribes like the Osage, Fox, Sac, Shawnee and Cherokee were making Missouri home. Hunters and trappers, mostly of French descent, also made this territory home. These trappers spent weeks in the woods trying to get enough beaver pelts to trade in St. Louis. When they had their pelts ready, boatmen who made their living taking people up and down the river would transport the trappers to the trading post.

The Corps of Discovery met many different cultures along their trip and helped to foster better trading relationships with the native tribes. They visited places no other American had and brought back species of animals and plants no one had ever seen. Thanks to them, we now have accurate maps and know much more about the rich natural and cultural tapestry that makes up this country.

Challenge

WRITING HISTORY

(Taken from Missouri Wildlife Trails, page 25)

Today we know much about early life in Missouri because travelers and explorers kept journals that told of what they saw and how they lived. Write in your own journal about what you think traveling across Missouri to your home would have been like 200 years ago. Then draw your journey.

the Big Muddy

by: Bob Fluchel
Education Program Coordinator,
Missouri Department of Conservation

Osage Indians first named the great river that flows across our state the "Missouri," which means "big canoes." Starting in the mountains of Montana, the Missouri River flows for 2,315 miles touching six states before it joins the Mississippi River at St. Louis.

Nick-named "Big Muddy" due to the high sediment loads it carries, the Missouri River looks much different today than it did in 1804. Historically the river meandered across more than one-fourth of its floodplain. This "meander belt" contained a wealth of fish and wildlife habitats including wetlands, sand bars, wet prairies and bottomland forests. Seasonal floods provided the water needed to replenish shallow-water habitats used for fish and wildlife breeding and growth. Today, Lewis and Clark would not recognize many parts of what they described as a wide and wild river.

People have changed the River for better and for worse. The construction of dams, levees and riverbank stabilization structures such as rock revetments and pile dikes have reduced the frequency and severity of flooding. While these measures have reduced flooding to some extent, the recent floods of 1993 and 1995 demonstrated that large floods can still happen. When the river overflows the levies, costly damage to homes, businesses and croplands in the floodplain can occur. Controlling flooding, however, has increased the amount of floodplain land that is used for agricultural purposes. In addition, the main stream dams have created recreation areas that add significantly to local economic stability.

Channelization straightened and deepened the river allowing for dependable navigation, thereby allowing barges to carry grain and other commodities up and down the Missouri.

What was once a wide, shallow river with many channels is now a single deep canal with swiftly-flowing water and a significant loss of wildlife habitat. The river now has few sandbars, little diversity of depths and almost no connection with side channels or backwaters. These changes have lowered populations of many river fish and bird species, some to the extent that they are listed as endangered, threatened, or "special concern."

We rely on the River today as much as Lewis and Clark did. It is a valuable natural resource that provides wildlife habitat, flood control, transportation and recreation. Conservationists, biologists, engineers and concerned citizens are working together to enhance, improve and sustain this dynamic resource. Wise use of the Missouri River is as important to future generations as was the discovery of this great river by Lewis and Clark.

May 30, 1804

"Pass a cave called Monbrun's Tavern. Pass thee Muddy River which falls in on the N. side. this river waters a most delightfull country; the land lies well for cultivation, and is fertile in the extreem, particularly on the Missouri, both above and below this river for many miles; it is covered with lofty and excellent timber; and supplyed with an abundance of fine bould springs of limestone water." Lewis

September 15, 1806

"We passd Some of the most Charming bottom lands to day and the uplands by no means bad, all well timberd." Clark

Forest & Prairie Resources

by: Jeff Cockerham
Outreach and Education Regional Supervisor,
Missouri Department of Conservation

The 1804 landscape viewed by Lewis and Clark differs drastically from the one we view today. Many early villages, towns and encampments were located along river banks. The forest and prairie alongside the rivers provided the raw materials people needed for survival. Trees provided fuel for fires and lumber for boat and home building. Prairies provided food for the buffalo, elk and deer that, in turn, provided food for the people. Without these resources, survival along the river would have been difficult.

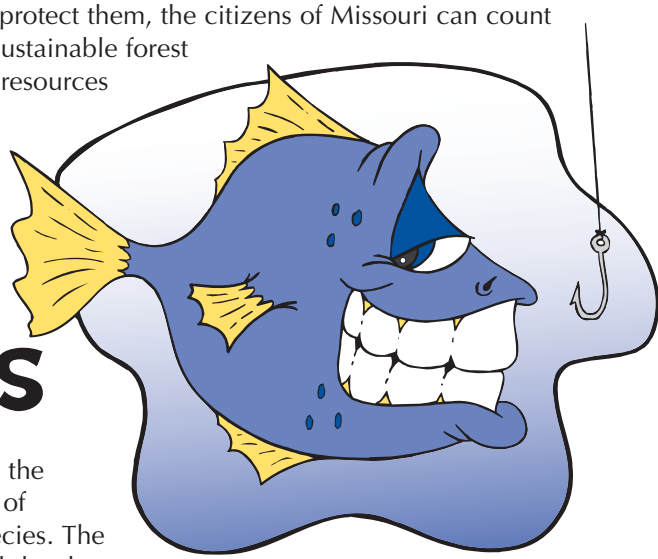
Lewis and Clark made note of the forest and prairie resources. They noted the cottonwood tree, especially useful for building dugout canoes. They wrote of gathering pawpaws or custard apples and using them for food. They wrote of the beautiful prairies and the fertile soils under them. Their list of noted trees and plants was long, highlighting the diversity of these important resources.

In a larger sense, the forest and prairie resources had a great ecological impact on the lands along the Missouri River. These resources provide habitats for a large number of wildlife species. They were also part of the flood plain, helping to stabilize river banks and slowing the river flow during flood events. By slowing flood waters, nutrient-rich sediment was deposited, leaving the land along the river exceptionally fertile. Trees and plants along the river were adapted to this periodic flooding, enabling them to survive in tough conditions.

Later settlers found these abundant resources and soon placed a high demand on them. Forests were cut and lumber was sent back to the towns and cities for home building. Cleared land and prairies were plowed for crop planting. The prairie land was fenced off for cattle and sheep grazing. These changes in land use decreased the plant and animal diversity and led to the decline of many species.

Modern management practices have helped to enhance the quality of our forest and prairie resources. Carefully planned timber harvests and prescribed burns have improved the health of forest and prairie tracts. Cleared land has been allowed to regenerate naturally, or in severe cases, trees or prairie plants have been reintroduced into areas where they once grew. Adapted to flood plain conditions, these native plants provide a buffer to periodic floods and help increase soil fertility.

Our forest and prairie resources continue to face challenges, including land fragmentation and demand for products. Fortunately, many people appreciate the value of these resources and are working diligently to conserve them. By working to protect them, the citizens of Missouri can count on having sustainable forest and prairie resources in the future.



Aquatic Resources

by: Barb Byrne & Syd Hime
Outreach & Education, Missouri Department of Conservation

Lewis and Clark explored the entire length of the Missouri River during their journey. Few rivers of the time were more active. The Missouri was characterized by numerous channels, a variety of islands and extensive sandbars. Backwaters provided spawning areas for fish and other aquatic species while fast flowing currents and bank erosion contributed debris consumed by aquatic life. The Missouri river provided habitat for more than 150 different species of freshwater fish.

Changes that have occurred along the Missouri River and its watershed since the voyage of discovery have reduced habitat and the population of aquatic species. The river's width has been reduced by about two-thirds, its length shortened by over 120 miles and 90 percent of its islands and sandbars have been eliminated. Fish species have undergone a dramatic change. Thirty-three of the 156 native fish species in the Missouri River basin are now considered rare, threatened, or endangered. Big river fish species such as sturgeon and paddlefish, once common in the Missouri River and present there since prehistoric times, are at great risk of being lost forever.

The pallid sturgeon is one such fish. Historically found in the Missouri River and lower Mississippi River basins,

this ancient fish was designated as a nationally endangered fish species in October 1990 because of threats to its survival posed by over fishing, habitat destruction and hybridization. Early reports indicate that specimens weighing as much as 65 pounds were formerly taken in the Missouri River. Pallid sturgeon are generally long-lived, possibly living as long as 41 years. The Missouri Department of Conservation has stocked juvenile pallid sturgeon at multiple sites along the Missouri and lower Mississippi Rivers in an effort to stabilize populations.

Paddlefish are another fish species that have been adversely affected by changes to the Missouri River. These shark-like fish are distinguished by their greatly elongated, paddle-shaped snout. The paddlefish was formerly abundant over much of the Mississippi Valley but has undergone a drastic decline since 1900. Although it is one of the larger freshwater fishes of North America, it feeds throughout life on microscopic plants and animals. It has been reported to attain a weight of 160 pounds or more and a length of about seven feet. Until recently the largest self-sustaining population of paddlefish in Missouri existed in Lake of the Ozarks and the upper Osage River. Closure of Truman Dam on the Osage River above Lake of the Ozarks inundated all the known spawning grounds for this population and it is now being maintained by stocking.

Large blue catfish, like the ones discovered by the Lewis and Clark crew, still live in the Missouri River. Historical records note that it was common to catch catfish weighing from 125 to 200 pounds from the river. Because of its large size and firm, well-flavored flesh, the blue catfish is a highly valued food fish. Sport fishing and commercial harvest of this species in the Missouri and Mississippi rivers have increased dramatically in recent decades. In the early 1990's, concerns of overharvest led to the closure of the commercial fishing for blue catfish in the Missouri River.

Wildlife Resources

by: A.J. Hendershot
Outreach & Education Regional Supervisor, Missouri Department of Conservation

Missouri has a rich history of wildlife resources. These wildlife resources were instrumental in attracting early explorers and settlers to Missouri. The diversity of habitats associated with the state's rivers, prairies and forests supported an abundance of wildlife species, which were as important to the early settlers as they are to us today.

One could say that Missouri was founded on the fur trade. French and British traders roamed Missouri, trading blankets, iron tools and beads to the Indians for beaver, mink, otter and raccoon furs. Traders transported the furs to St. Louis where they were sold to buyers to be shipped to Europe for felt hats. Beaver felt hats were in high demand in Europe, making the beaver pelt trade extremely profitable.

Following the Lewis and Clark Expedition, the Indian tribes were not as eager to trade with new Americans coming to the area. The new "Americans" began to start trapping on their own. This change from trading to trapping led to Missouri's "Mountain Man" era of the 1820's. Trappers would move up the Missouri River and its tributaries in search of the rich populations of fur-bearing animals. Using iron traps, they would spend months trapping, skinning and packing the furs. In spring, they would bundle up their furs and head back to the buyers.

The wildlife resources yielded much more than furs. Deer, elk, bear and buffalo supplied meat, hides and tools for the Indians, explorers and traders. Lewis and Clark relied on these resources to provide food for their crew as they moved through Missouri. Meat was the major source of protein for members of the expedition. They often consumed between 7-10 pounds of meat per person per day!

The exploration and settlement of Missouri led to drastic changes in Missouri's wildlife. Land use changed habitat diversity and altered the resources the animals depended on. Large predators such as mountain lions, timber wolves and grizzly bears were eradicated because people viewed them as threats to livestock. Deer, turkey, river otter and beaver populations plummeted due to habitat loss and market hunting.

Wildlife resources were at critical levels in the late 1800s and early 1900s. Many species, while still found in other areas, were extirpated from Missouri. Others, like the colorful Carolina Parakeet which Lewis and Clark had described in their journals, had disappeared. The Passenger Pigeon had the same fate, driven to extinction by a combination of habitat loss, market hunting and, quite possibly, disease brought in by exotic species.

Fortunately, the people of Missouri realized the importance of our wildlife resources. Sound management practices, including regulated hunting and trapping, capture and relocation, and habitat restoration helped restore many species populations back to healthy levels. The abundance of deer, turkey, river otters and beaver that we enjoy today are the result of Missourians' concern for natural resources. In the future, we will need this same concern as our wildlife resources face new challenges and threats to their survival.

Celebrating the Expedition

by: Shannon Cave
Public Involvement Coordinator,
Missouri Department of Conservation

Lewis and Clark's Corps of Discovery had a complex assignment that used or investigated just about every subject in school. Much of it involved wildlife, fish, plant and other natural resources. Expedition members faced grave risks, but persevered at all costs to do what they set out to do.

We commemorate all that in the years 2003-2006, when a keelboat and two pirogues from St. Charles will retrace the trip by water. They will start down the Ohio in late August 2003, turn up the Mississippi River just before Thanksgiving and camp across from St. Louis for the winter. They will leave the Mississippi on May 14, 2004, returning to St. Louis September 22, 2006.

Wherever the re-enactors go, they will visit schools, welcome classes to the river, and join in festivals planned by hundreds of communities. During 2004, there will be national events in St. Louis, March 12-14; St. Charles, May 14-23; and Kansas City area, July 3-4. On July 19, 2004, the keelboat will leave Missouri. Students can follow news about western state events for the remainder of 2004 and through 2006. These years offer the opportunity for extended learning about Lewis and Clark, rediscovery of Missouri history and extending community involvement.

President Jefferson's instructions to Meriwether Lewis provide an excellent model for educators today. The letter outlining these instructions can be viewed online at <www.monticello.org>. Modern school subjects and many standards are implicit in these instructions. Opportunities for classroom application include:

- Using bicentennial attention to interest students about local expedition connections and the trip's profound implications.
- Challenging students to become educators, the ones to tell their own communities about forgotten history.
- Doing a legacy project "in the spirit of the Corps of Discovery" – perhaps an outdoor classroom, restored monument, or healing an ignored stream. Choose what's important, find out what it takes, and make it happen.

All of these will double the rewards of commemorating the expedition's 2006 return trip through Missouri. Indeed, if current lifespan projections are right, some of your students will be alive in 2104, and be able to tell about the legacy you helped them create during the Lewis and Clark Bicentennial.

September 10, 1806
"We saw Deer rackoons and turkies on the Shores to day one of the men killed a racoon which the indians very much admired." Clark

Challenge
Discover the Unknown

(Taken from Missouri Wildlife Trails, page 24) **Lewis and Clark didn't have cameras to record the new plants and animals they saw. The only tools they had were ink and paper, so they drew pictures and wrote about what they saw.**

Find a plant near your home or school. Pretend you are a member of the Corps of Discovery. Make a careful sketch of the plant. Then describe the plant using details of size, color and shape. Give your plant a name just as Lewis and Clark would have done.

Project Resource Guide - Lewis & Clark

Looking for additional fun activities to add to your Lewis & Clark curriculum? Selected from Projects WILD, Learning Tree, and WET, these interdisciplinary, hands-on, easy-to-use activities will engage your students in exciting and different ways. To receive these outstanding education materials, along with their Show-Me Standards correlations, attend the next training workshop in your area. Contact the coordinators listed for more information.

Project WILD

Bird Song Survey – Page 200, 2001 Edition Page 406 – Identify and describe the importance of bird counting as one means of inventorying wildlife populations. *(Grades 9-12).*

Environmental Barometer – Page 80 – Observe and count wildlife in an area; discuss why wildlife is or is not present; consider ways in which the presence of wildlife can be seen as an indicator of environmental quality. *(Grades Pre-K-5).*

Prairie Memoirs – 2001 Edition Page 188 – Interpret different cultural viewpoints; describe how wildlife and habitat affect cultures and societies; evaluate cultural factors leading to the endangerment of a species. *(Grades 5-8).*

Rare Bird Eggs for Sale – Page 296, 2001 Edition Page 339 – Identify reasons for and consequences of collecting wildlife products; suggest and evaluate alternatives to collection to satisfy collection needs. *(Grades 5-12).*

Wild Words – Page 66, 2001 Edition Page 41 – Research past- and present-day naturalists; analyze journals of the naturalists they investigated. *(Grades 4-12).*

Aquatic WILD

Watered Down History – Page 116, 2001 Edition Page 91 – Describe human, plant and animal life associated with a waterway over a period of time; predict the future of the waterway; analyze cause-and-effect relationships between events affecting the waterway. *(Grades 4-8).*

Riparian Retreat – Page 34, 2001 Edition Page 118 – Describe habitat characteristics of riparian areas; identify animals that inhabit them; state the importance of riparian areas to wildlife and humans. *(Grades 5-12).*

Project Learning Tree

Field, Forest and Stream – Page 156 – Investigate and measure components in three different ecosystems; describe similarities and differences among three ecosystems; identify ways that the abiotic components of an ecosystem affect the biotic components. *(Grades 4-8).*

Picture This! – Page 16 – Identify similarities and differences between organisms by collecting pictures and categorizing them; comprehend the connection between diverse organisms and the diverse environments in which they live. *(Grades PreK-3).*

Planet of Plenty – Page 24 – Investigate the diversity of plants and animals on a small plot of land; explain the value of a diversity of life forms in a particular ecosystem. *(Grades 4-6).*

Then and Now – Page 131 – Describe the environmental changes that have occurred in the community over the course of time; discuss whether those changes have been positive or negative for the community; discuss ways to remedy negative changes. *(Grades 5-8).*

For information on Project WILD and Learning Tree workshops and materials, contact Bruce Palmer, State Coordinator, Missouri Department of Conservation, PO Box 180, Jefferson City, MO 65102-0180, 573/751-4115 x3113, <palmeb@mdc.state.mo.us>

Project WET

Water Crossings – Page 421 – Analyze the influence of river crossings on settlement patterns; describe the water-related transportation problems that faced early explorers and settlers; design and build water-crossing conveyances. *(Grades 5-12).*

For information on Project WET workshops and materials, contact Joe Pitts, State Coordinator Department of Natural Resources, PO Box 176, Jefferson City, MO 65102, 1-800/361-4827, <nrpittj@mail.dnr.state.mo.us>

The Library

Conservation and Environmental Education Resources

Web Resources

Lewis & Clark Map Site
<http://lewisclark.geog.missouri.edu>
Contains geographical information and maps that are products of the Lewis and Clark Historic Landscape Project.

PBS- Lewis and Clark
<http://www.pbs.org/lewisandclark>
PBS website gives detailed information about members of the expedition, even those who were virtually unknown; lots of lesson plans and activities.

National Park Service – Lewis and Clark National Historic Trail
<http://www.nps.gov/lecl/welcome.htm>
Gives information about the trail sites in all eleven states; lists of curriculum guides and other resources.

Lewis and Clark's Expedition
<http://www.nwrel.org/teachlewisandclark/home.html>
Curriculum Ideas and Educational Resources.

Discovering Lewis and Clark
<http://www.lewis-clark.org>
A progressive web site currently containing more than 1,400 pages. It is enhanced by one or more new episodes each month.

National Geographic's Lewis and Clark Site
<http://www.nationalgeographic.com/lewisclark/index.html>
National Geographic's site. Nicely done interactive story; comprehensive list of additional web resources and books.

Official Monticello Site
<http://www.monticello.org/education/lcresource/books.html> This website is maintained by the Thomas Jefferson Foundation and has an extensive list of Lewis and Clark related books for teachers and students.

Lewis and Clark Trail
<http://www.lewisandclark.org>
The official home of the Lewis and Clark Trail Heritage Foundation, Inc. Includes information about a curriculum guide for grades 5-9 which was complied by the foundation.

The Lewis and Clark Journey of Discovery
<http://www.nps.gov/jeff/LewisClark2/HomePage/HomePage.htm> A wealth of teacher resources on the Lewis and Clark expedition and the Louisiana Purchase.

Lewis and Clark in Missouri
<http://www.lewisandclark.state.mo.us/index.html>
Official site of the Missouri Lewis and Clark Bicentennial Commission.

The Journals
<http://xroads.virginia.edu/~hyper/journals/toc.html>
Twenty-eight chapters of journal entries. Easy access and easy reading. Also contains a printable .rtf version of the entire text.

Louis and Clark on the Information Superhighway
<http://www.lcarchive.org>
A comprehensive listing of other websites related to the Lewis and Clark expedition. Over 900 sites on this list that continues to grow.

Publications

Missouri Wildlife Trails
A new 40-page activity book for Missouri history. Includes text on the state's wildlife, geography and settlement through text, illustrations and activities. Missouri Department of Conservation. E093. To order, call 573/751-4115 x3630.

The Story of Sacajawea, Guide to Lewis and Clark
Rowland. This book draws an accurate portrait of the woman who helped forge the trail across the West. <www.amazon.com> Ages 9-12. ($3.99)

Undaunted Courage: Meriwether Lewis, Thomas Jefferson, and the Opening of the American West
Ambrose, Stephen. A biography of Meriwether Lewis that relies heavily on the journals of both Lewis and Clark. <www.amazon.com> ($11.90)

Lewis and Clark in Missouri

Rogers, Ann. A great summary of the expedition before they left St. Louis and when they returned. Grade 6 reading level. <www.amazon.com> ($12.60)

How We Crossed the West: The Adventures of Lewis and Clark

Schanzer. A simplified version of the diaries of Lewis and Clark. Ages 8-12. <www.amazon.com> ($7.95)

The following publications are available from Acorn Publications, PO Box 2423, Tustin, CA 92781-2423 or (800) 422-8886, <http://acornnaturalists.com>.

Animals on the Trail with Lewis and Clark

Patent, Munoz (Photographer). NEW vision of what North America was like before settlement. In addition to mapping the territory, these individuals wrote prolifically about the wildlife they encountered, including many new species never before described. Intriguing blend of natural science, history and adventure for ages 8-14. #B-10287. ($17.95)

Sacajawea: The Story of Bird Woman and the Lewis and Clark Expedition

Bruchac. This book tells the amazing story of a Shoshone woman who joined the original expedition of Lewis and Clark as a translator, peacemaker, caretaker and guide. #NAT-9082. ($16.95 hardcover).

Lewis and Clark for Kids: Their Journey of Discovery with 21 Activities

Herbert. Lewis and Clark's epic journey recorded the geography, ethnology, zoology, botany and early lore of life in the wilderness west of the Mississippi. Wonderful blend of social, biological and physical sciences for ages 9-16. #B-10008. ($14.95).

The Saga of Lewis And Clark, Into the Uncharted West

Schmidt. Features original excerpts, maps, descriptions of new plants and animals, intriguing historical artifacts and adventurous stories. #B-10173. ($24.95).

Videos

Lewis and Clark: The Journey of the Corps of Discovery. 240 minutes on 2 tapes. This extraordinary film chronicles the story of the two captains, the young army men, French-Canadian boatmen, Clark's African-American slave and Sacajawea, the Shoshone woman who was a key, lifesaving member of the group. Available from PBS online store. <www.shop.pbs.org> ($24.98).

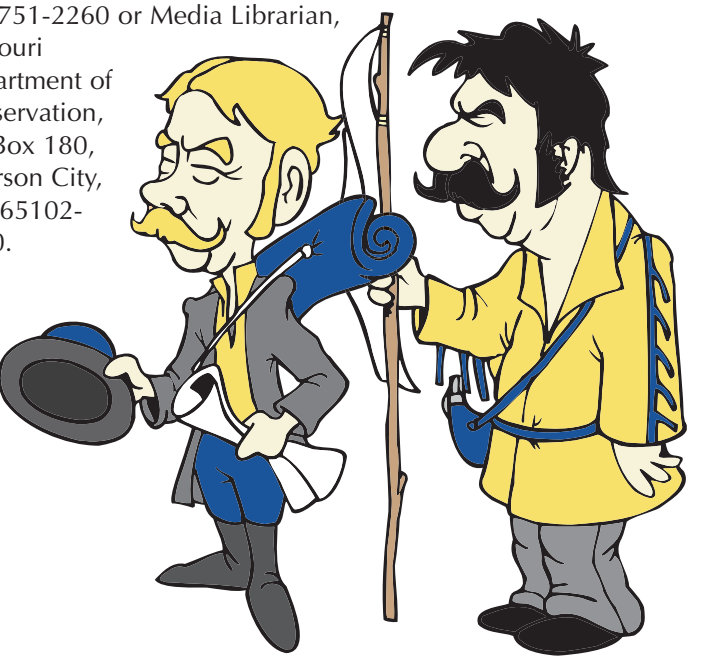
Lewis and Clark: Great Journey West. 65 minutes. Experience the adventure, danger and beauty of the land beyond the Mississippi as it unfolded before the eyes of the explorers themselves. Narrated by Jeff Bridges. Created by and available from National Geographic. <http://shop.nationalgeographic.com> ($19.95).

Missouri 1804 – Lewis and Clark Expedition

Elementary-Adult/ 27 minute video
Explore the Missouri River as it is today and 200 years ago. Host Kipp Woods retraces the journey of Lewis and Clark and compares that Missouri to the one we know today. Available from <www.mdcnatureshop.com> or toll free at 877/521-8632 ($10.00). Also available on loan from our Media Librarian at 573/751-4115 x3837, fax at 573/751-2260 or Media Librarian, Missouri Department of Conservation, PO Box 180, Jefferson City, MO 65102-0180.

Lewis and Clark – Corps of Discovery in Missouri

Elementary-Adult/ 27 minute video
President Thomas Jefferson brokered the greatest land deal in history – The Louisiana Purchase. For $15 million, it doubled the size of the United States, but the lands to the west were shrouded in mystery. Jefferson's instruments of discovery were two exceptional men, Meriwether Lewis and William Clark. Explore Missouri like never before through the eyes of Lewis and Clark. Available from <www.mdcnatureshop.com> or toll free at 877/521-8632 ($10.00). Also available on loan from our Media Librarian at 573/751-4115 x3837, fax at 573/751-2260 or Media Librarian, Missouri Department of Conservation, PO Box 180, Jefferson City, MO 65102-0180.



EE Calendar

Check It Out

www.conservation.state.mo.us has up-to-date information on the Department of Conservation's educator workshops. There's something for everyone!

December 13-14

Conservation and the Land Ethic in Missouri
Bois D'Arc Conservation Area (north of Willard)
5:00 -10:00 pm Friday
8:00 am - 6:00 pm Saturday
A new combination of the Leopold Education Project and the Missouri Hunter Education Certification Program, this workshop offers all educators cross-curricular opportunities to heighten student awareness and appreciation of firearm safety and conservation practices in Missouri.
1 hour graduate and undergraduate credit, SMSU.
Contact: Regina Knauer, MDC, 417/895-6880

January 25-26

Energy for Missouri: Today and Tomorrow
Kansas City
9:00 am – 5:00 pm Saturday
8:00 am – 12:00 pm Sunday
Fee: $30
Current forms of energy use and projections for the changing future of energy in Missouri will be explored.
Contact: Bryan Hopkins, MDNR, 800/361-4827

February 8-9

Used Oil Recycling Education Program
Route 66 State Park
9:00 am – 5:00 pm Saturday
8:00 am – 12:00 pm Sunday
Fee: $30
The history of Times Beach will provide the backdrop for understanding the issue of used oil management.
Contact Jim Lubbers, MDNR, 800/361-4827

February 22

Project Learning Tree for Educators
Kirksville, Adair County Extension Building
9:00 am – 4:00 pm
Fee: $15, Reservations required
For anyone interested in educating others about nature, here's your chance. The program features hands-on activities to teach the critical thinking skills students need to become future environmental decision makers.
Contact: Karen Armstrong, MDC, 660/785-2420

March 1

Project Learning Tree for Educators
Hannibal, MDC Office
9:00 am – 4:00 pm
Fee: $15, Reservations required
For anyone interested in educating others about nature, here's your chance. The program features hands-on activities to teach the critical thinking skills students need to become future environmental decision makers.
Contact: Karen Armstrong, MDC, 660/785-2420

April 9

Mad Cow Disease: The Cool Science behind a Hot Topic
St. Louis Zoo
7:30 – 9:00 pm
Mad Cow Disease is a disease that causes brain degeneration. Discussion will center on what has been learned about this disease in Europe and how this knowledge is being applied to ensure a healthy cattle population and food supply in the U.S.
Contact: 314/768-5466 or 314/533-8083

Eagle Days

Join any of the following events to experience spectacular winter eagle watching. Events include live eagle programs, exhibits, activities, videos and guides with viewing scopes.

Squaw Creek Wildlife Refuge, Mound City
December 7-8
9:00 am – 4:00 pm
Contact 816/271-3100

Willmore Lodge, Lake Ozark
January 4
9:00 am – 4:00 pm
January 5
10:00 am – 4:00 pm
Contact 573/526-5544

Conservation Nature Center, Springfield
January 11
9:00 am – 4:00 pm
January 12
11:00 am – 4:00 pm
Contact 417/888-4237

Little Platte Park Course Complex, Smithville
January 11-12
9:00 am – 4:00 pm
Contact 816/532-0174

Old Chain of Rocks Bridge, St. Louis
January 18-19
8:00 am – 4:00 pm
Contact 314/231-3803

Lock and Dam 24 and Ted Shanks C.A., Clarksville
January 25
9:00 am – 4:00 pm
January 26
9:00 am – 3:00 pm
Contact 660/785-2420

DID YOU KNOW?

- Lewis and Clark often gave the US flag as a gift to the chiefs of Native American villages. The flag had fifteen stars on the blue field and it also had 15 alternating red and white stripes. There was no standard pattern to the flag at that time; the design, display and use of the flag was not regulated until after the War of 1812.

- Clark was the first to write of Carolina parakeets west of the Mississippi River. Large flocks of these colorful birds were once common in southeastern North America, but they became extinct by the early 1900s. They were killed as pests for eating seed and fruit crops. Many were captured and sold as pets. Clearing of forest land also hurt them. The Carolina parakeet was the only parrot native to Missouri.

- The men on the expedition needed time for play as well as work. Some of the activities noted in the journals include swimming, fishing, target shooting, horse racing, dancing, foot races, backgammon and "Clark's magic show with magnets."

- During the winter of 1805-06, the men of the expedition were busy making preparations for the return trip home. This included making as many moccasins as possible so they would not have to stop to hunt, dress hides and sew footwear every time an old set wore out. The men produced 358 pairs of moccasins in 3 1/2 months.

- Sergeant Charles Floyd was the only member of the Corps of Discovery to die during the expedition. After studying the reports surrounding his death on August 20, 1804, the medical community first acknowledged that a ruptured appendix can cause death.

CONSERVATION CURRICULUM

Outside-In

The Curriculum for Grades 5-8 ties into the Missouri Conservationist magazine's February 2003 issue.

Lewis and Clark Learning Trunks

To supplement and enhance your Lewis and Clark studies, the Missouri Department of Conservation makes Lewis and Clark learning trunks available to educators. Each trunk is different but contains a variety of fun and exciting items, such as videos, curriculum guides, resource reading books, maps and equipment for various activities. These learning trunks are available on free loan, but they are in high demand. If you would like to borrow a trunk, please contact your local Conservation Education Consultant or your local regional office.

Imagine a Single Drop of Water is a 25-minute creative dance performance about our environment, the importance of clean water to all living things, and ways to prevent nonpoint source water pollution. This dance concert, performed by eleven young dancers from Jefferson City, delivers a powerful message about the importance of clean water and empowers youth to take responsibility for doing their part. This live performance is available for presentation at your school. For more information, contact Dance Concepts, Inc., 1612 Wilmor Drive, Jefferson City, MO 65109.

New Curriculum Publication for Teachers!

The Missouri Department of Conservation has published a great new activity book designed for fourth graders, titled "Missouri Wildlife Trails." This 40-page book includes information on such topics as the state's wildlife, landscape, rivers and settlement presented through text, illustrations and activities. There are also several activities dealing with new conservation challenges in Missouri today. A great addition to your MDC curriculum materials!

Conservation Careers

Fish Pathologist

Determining pathology in our fish population is a vital aspect of conservation. Fish pathologists investigate fish health problems to determine if they are parasitic, bacterial, viral, nutritional, or water-quality related. They conduct their work not only for the Missouri Department of Conservation, but also for commercial fish hatcheries, public waters, privately-owned lakes and ponds, bait wholesalers and retailers and state or commercial fish exhibits. Pathologists diagnose disease causes and then make recommendations for controlling those diseases. Once they have their findings, they prepare and distribute reports of those results. Another key function includes evaluating requests for importing certain species of live eggs or fish, including trout, salmons, chars, graylings and whitefishes, into Missouri and then issuing the proper permits to allow the importation. Fish pathologists also distribute information and provide assistance to the public, so that citizens can do their part to help keep our fish populations healthy.

Fish Pathologists with the Missouri Department of Conservation have graduated from an accredited college or university with a Master's degree in fish health or aquaculture or have a Doctor of Veterinary Medicine degree with course work in aquatic animal health and have had some professional experience in fish health.

The Buffalo

PreK-2

Adapted from: *Conservation Seeds, Missouri Department of Conservation & Lesson Plan by Joan Hoehn, Cole R-V, Eugene, MO*

Did You Know?

Buffalo once roamed throughout Missouri. Native Americans and pioneers hunted them for food and clothing. Pioneers eventually killed nearly all of the buffalo, but they are available once again today. This activity will help introduce the buffalo and make children aware of buffalo as a food source.

Materials Needed

- Pictures of buffalo
- Pieces of brown felt
- Light brown felt
- Scissors
- Glue

Preparation

- Display the pictures of the buffalo in the classroom.
- Discuss how the buffalo lived here a long time ago and how the pioneers and Native Americans hunted them for food.
- Talk about how a buffalo and a cow are alike and how they are different.

What to Do

1. Cut buffalo steaks from the large piece of brown felt. Use the light brown felt to make steak bones to glue on the steaks.
2. Use the buffalo steaks in the pretend play area during free choice time. Include other foods, such as corn, turkey, etc., used by Native Americans and settlers.

Questions You Might Ask

- How do you think buffalo tastes?
- How do you cook buffalo?
- What is another name for buffalo?
- What other animals lived on the prairie?

Supplementary Activities for Younger Children

Block - Make buffalo from spools, pipe cleaners and material scraps. Place in the block area for children to play with during self-selected activity time. Include enough for a herd.

Block - Grow cookie trays of grass to simulate prairie. Place in the block area during self-selected activity time along with the spool buffalo. As children play, discuss the way Missouri looked during the time of the buffalo.

Bulletin Board - Display the Missouri Prairie Birds poster, available from the Missouri Department of Conservation. As children show interest, discuss the habitat needs of prairie birds.

Field Trip - Visit a native prairie area.

Science – If available, bring in a buffalo hide for the children to touch and experience.

Nutrition – Plan a buffalo meat-tasting activity. Contact Rick & Diane Carmack of Carmack Farms in Glascow, MO (660/338-2393) for buffalo meat or to get information about availability of buffalo meat in your area. Cook hamburger and steaks at school or bring in already-cooked meat or jerky for the students to sample.

Outside - Let one section of the play yard go without mowing to simulate prairie. Discuss the differences in habitat between the regularly cut grass and the "prairie" section.

Pretend Play - During self-selected activity time, provide pioneer dress-up clothes such as straw hats, overalls, cotton dresses, etc.

Supplementary Activities for Older Students

Math –

1. Use representations of buffalo to create simple addition and subtraction problem worksheets.

2. Bring some buffalo nickels to class. Tell how the buffalo and the Indian were both honored on this nickel. The buffalo was almost extinct by 1913 when this nickel was put into circulation. Discuss the price of land at the time of the Louisiana Purchase (sold for about three cents an acre). Create a worksheet showing groups of buffalo nickels and have students calculate how many acres of land they could buy with each group of nickels.

Art – Have the students draw a picture of how they might use a buffalo or what a buffalo's habitat would look like.

Language Arts – Have the students write a short story about saving the buffalo – how, why, where or when to save it.

Who Are Meriwether Lewis & William Clark?

3-4

Developed by: *Karen Hagedorn, Chance Elementary, Centralia, MO*

Objectives

After completing this activity, students will be able to:

1. Define character sketch.
2. Scan reading material for detail.
3. Listen and comprehend detail from description.
4. Describe character traits of a person.
5. Compare and contrast character traits of two people using a Venn diagram.

Show Me Standards

Performance: 1.2, 1.4, 1.5, 1.6, 1.8, 2.1
Knowledge: CA3, CA4, CA5, CA6

Conservation Concepts

- Conservation may involve preservation, restoration and management.
- People are subject to the same natural laws that apply to all living things.

Materials Needed

- "The Story of Sacajawea, Guide to Lewis & Clark," by Della Rowland
- "Undaunted Courage: Meriwether Lewis, Thomas Jefferson, and the Opening of the American West," by Stephen Ambrose
- Other sources of information about Meriwether Lewis and William Clark
- Pencil, paper, Venn diagram outline
- Student copies of the Sacajawea book

Background Information

Obtain information from "Undaunted Courage" and other source books about the Lewis and Clark expedition

Preparation

- Discuss and define characters and character sketch.
- Demonstrate and practice using a Venn diagram.
- Read "The Story of Sacajawea" together in class.

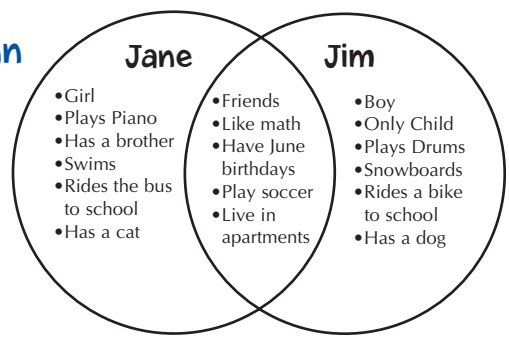
Procedure

1. Have students silently reread those pages of "The Story of Sacajawea" that have descriptions of Lewis and Clark.
2. Orally discuss these pages and share other information from "Undaunted Courage" and other sources.
3. Have students write down 1-3 traits of Lewis. Allow about 1-2 minutes to discuss with a partner, then with entire group.
4. Have students write 1-3 traits or facts about Clark. Allow 1-2 minutes to discuss with a partner, then with entire group.
5. As a group, discuss characteristics that are alike and ones that are different about each man.
6. Assign Venn diagram.

Evaluation

A good Venn diagram of Lewis and Clark, comparing and contrasting, will include at least 5 traits or facts in each of the 3 sections of the Venn diagram.

Sample Venn Diagram



Supplementary Activities

Reading – Do a Venn diagram showing the traits of various Indian tribes.

Language Arts – Have the students write one complete sentence in their journals that describes something about Lewis and a second complete sentence that describes something about Clark.

Math – Have students calculate the distance between various stopping points on the trip.

Science – Compare the flora and fauna of the expedition to what we see in the present. Make a list of the rocks and minerals that were found on the trip. Discuss and show pictures of the navigational instruments that were used at that time.

Social Studies – Draw a map of the Missouri River. Discuss the different Native American tribes that the explorers had contact with. Compare transportation as it was then versus how it is today.

OUTSIDE in Guide

5-8

The Communication Chain

Developed by: *Jean Mayer, Outdoor Skills Specialist, Missouri Department of Conservation*

Objective

After completing this activity, students will be able to:

- Recognize the frustration associated with trying to communicate in a foreign tongue
- Discover how that frustration can often lead to miscommunication

Show Me Standards

Performance: 1.5, 1.6, 2.2, 3.2, 3.4, 3.5, 4.6
Knowledge: CA1, 2, 4, 6, 7; SS2, 6; MA3, 4

Materials

Accompanying dialogues and code translation chart

Background

The fur trade got its start in the late 1700s but was really just taking off by 1800. The traders got their furs by bartering with the native tribes in Missouri and beyond. When President Jefferson realized how important the fur trade could be for the US, he asked Lewis and Clark to meet with the native tribes as part of their expedition. But the natives did not speak English. So how would they communicate with the different tribes they met along the way? Could they rely on sign language to converse? Would they need translators, and if so, who? And where would they find them? Lewis & Clark faced many challenges when trying to communicate with the various Native Americans they met during their expedition. At one point in their journey, they were forced to translate from Shoshone to Hidatsa to French to English. In August of 1805, The Corps of Discovery found themselves in dire straits. With winter quickly approaching and running out of supplies, they desperately needed to find a short and easy passage over the Continental Divide which would take them to the Pacific Ocean. Not only did they need a guide, but they also needed horses to make this crossing as fast as possible. In short, they needed the help of the Lemhi Shoshone. In order to communicate with Chief Cameahwait, the following translation chain was necessary: Lewis would speak English to Francois Labiche, who would speak French to Touissaint Charbonneau, who would speak Hidatsa to Sacagawea, who would speak Shoshone to Chief Cameahwait. When the chief's reply came, it moved back along the chain to Lewis.

Procedure

1. Share the background information above with the class.
2. Divide the class into small groups.
3. Copy and distribute the translation code.
4. Distribute copies of the dialogues between Meriwether Lewis and Chief Cameahwait.
5. On a separate sheet of paper, have the students decode each dialogue.
6. **Important** – Remind the students to translate the dialogues in the following order: Shoshone to Hidatsa, Hidatsa to French, French to English.
7. Have each group share their results with the class.

Dialogue Answers

1. "The water is rocky with many rapids. It is not possible to ride on the river or follow along it by land to the other side of the mountains."

2. "There are no buffalo to the west of the mountains. The Nez Perce tribes who live to the west come across the mountains to hunt buffalo."

3. "There is a difficult route on the northern end. I have never crossed the mountains, but an old man in my band has. Old Toby can show you the way."

4. "We will bring some roots and berries. My people have grown hungry because we cannot live near the buffalo. Our enemies have guns and we do not. If we had guns, we could live in the country of buffalo and eat as our enemies do."

5. "We have horses, but what do you have to trade for them?"

6. "I wish to serve you in every respect. I am sorry that you have no guns. But as we have lived without guns so far, we will wait for you to bring them in the future as you have promised. Let us trade for horses and some of my band will serve as your guide."

Translation Codes

When translating from **Shoshone to Hidatsa**, use this code to match the letters of the alphabet:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
D A F C H E J G L I N K P M R O T Q V S X U Z W B Y

When translating from **Hidatsa to French**, use this code to match the letters of the alphabet:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
B A D C F E H G J I L K N M P O R Q T S V U X W Z Y

When translating from **French to English**, use this code to match the letters of the alphabet:

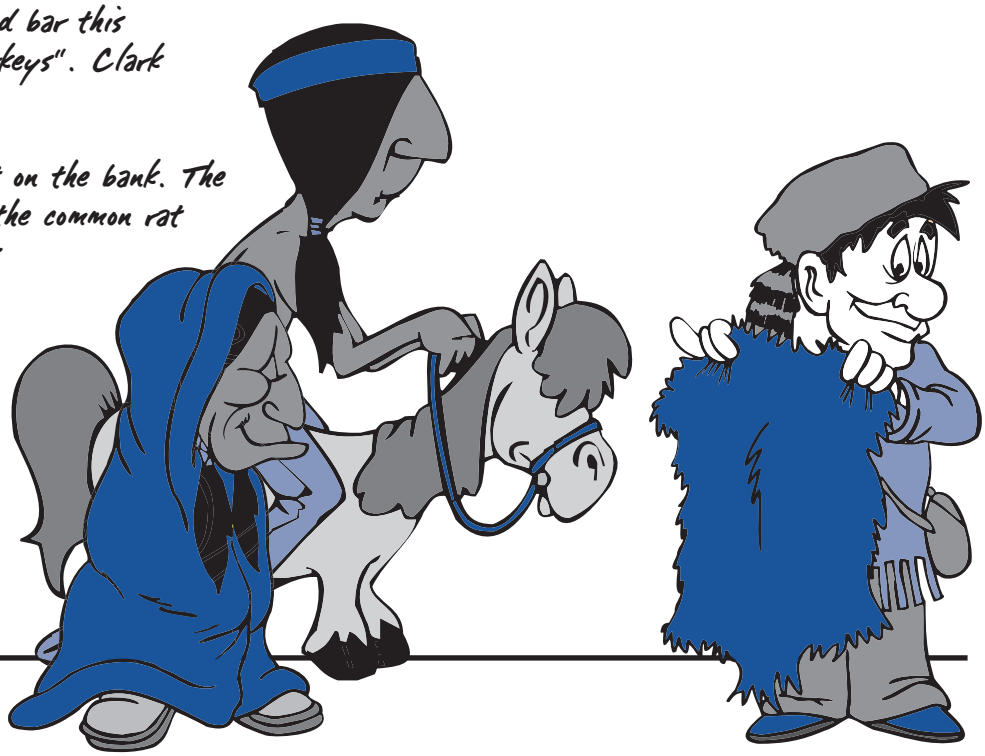
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
W X Y Z A B C D E F G H I J K L M N O P Q R S T U V

June 6, 1804
"Some buffalow Sign to day." Saline or Salt Creek "is about 30 yds. wide, and has So many Licks & Salt Springs on its banks that the Water of the Creek is Brackish . . .the water of the Spring in this lick is Strong as one bushel of the water is said to make 7 lb. of good Salt." Clark

June 30, 1804
"Saw a verry large wolf on the Sand bar this morning walking near a gange of Turkeys". Clark

July 7, 1804
"Killed a wolf and a large wood rat on the bank. The principal difference between it and the common rat is, its having hair on its tail." Gass

June 13, 1804
"This is a butifull place the prarie rich & extinsive." Clark The Grand River enters "just above a beatifull and extensive prarie. . . About the entrance of this river the lands are extreemly fertile; consisting of a happy mixture of praries and groves, exhibiting one of the most beatifull and picteresk seens that I ever beheld." Lewis



Dialogues

1.**Lewis**: "We are not familiar with this land. What can you tell us about the land to the west?"

Cameahwait: "XLG YCXGV KU VQEMA YKXL OCRA VCTKHU. KX KU RQX TQUUKFPG XQ VKHG QR XLG VKZGV QV JQPPQY CPQRI KX FA PCRH XQ XLG QXLGV UKHG QJ XLG OQWRXCKRU."

2.**Lewis**: "What is on the other side of the mountain?"

Cameahwait: "XLGVG CVG RQ FWJJCPQ XQ XLG YGUX QJ XLG OQWRXCKRU. XLG RGD TGVEG XVKFGU YLQ PKZG XQ XLG YGUX EQOG CEVQUU XLG OQWRXCKRU XQ LWRX FWJJCPQ."

3.**Lewis**: "How do the Nez Perce tribes cross the mountains?"

Cameahwait: "XLGVG KU C HKJJKEWPX VQWXG QR XLG RQVXLGVR GRH. K LCZG RGZGV EVQUUGH XLG OQWRXCKRU, FWX CR QPH OCR KR OA FCRH LCU. QPH XQFA ECR ULQY AQW XLG YCA."

4.**Lewis**: "Do you have some food? We have not eaten since yesterday."

Cameahwait: "YG YKPP FVKRI UQOG VQQXU CRH FGVVKGU. OA TGQTPG LCZG IVQYR LWRIVA FGECWUG YG ECRRQX PKZG RGCV XLG FWJJCPQ. QWV GRGOKGU LCZG IWRU CRH YG HQ RQX. KJ YG LCH IWRU, YG EQWPH PKZG KR XLG EQWRXVA QJ FWJJCPQ CRH GCX CU QWV GRGOKGU HQ."

5.**Lewis**: "We are from the United States. Thomas Jefferson is the great father now and you are part of his children. We have met with your enemies and they have promised not to make war anymore. If there is peace among the tribes, Americans can bring many goods, including guns and powder, so you may hunt and protect yourselves. But we cannot bring these things until we have crossed the mountains and reached the ocean. Do you have horses to help us cross the mountains?"

Cameahwait: "YG LCZG LQVUGU, FWX YLCX HQ AQW LCZG XQ XVCHG JQV XLGO?"

6.**Lewis**: "We have leggings, beads, handkerchiefs and knives."

Cameahwait: "K YKUL XQ UGVZG AQW KR GZGVA VGUTGEX. K CO UQVVA XLCX AQW LCZG RQ IWRU. FWX CU YG LCZG PKZGH YKXLQWX IWRU UQ JCV, YG YKPP YCKX JQV AQW XQ FVKRI XLGO KR XLG JWXWVG CU AQW LCZG TVQOKUGH. PGX WU XVCHG JQV LQVUGU CRH UQOG QJ OA FCRH YKPP UGVZG CU AQWV IWKHG."

9-12 Missouri River-Then & Now

Developed by: *Kathleen Holtz, Montgomery R-II High School, Montgomery City, MO*
Adaptation by*: Steve Resner, Trinity Lutheran School, Jefferson City*

Objective

Given the events of the Louis and Clark Expedition, students will analyze and compare aspects and areas of the Missouri River then and now.

Time Needed

Three to four class periods

Show Me Standards

Performance: 1.1, 1.2, 1.3, 1.7, 2.1, 2.3, 3.1, 3.5, 4.3
Knowledge: SS2, SS5, SS6, SS7

Materials Needed

- Gold Jefferson Peace Medallion
- Present day map of the Missouri portion of the Missouri River
- Map of Missouri River from the Voyage of Discovery Reproducible map can be found at <www.pbs.org/lewisandclark/class/pdf/usmap.pdf>
- Paper, pens, colored markers
- Journal

Background

Thomas Jefferson was a man of curiosity and science. The great space between the western boundary of what was then known as the United States and the Pacific Ocean was of great curiosity to Jefferson. He also believed in our great destiny to own from the Atlantic to the Pacific (manifest destiny). To learn more about the new territory, Jefferson chose his secretary Meriwether Lewis and William Clark to lead a military expedition to explore and record everything they saw, everyone they met, and all new species they came upon. He also assigned them to map this unknown territory. The expedition started in St. Louis in the spring of 1804. The months in Missouri were a learning experience that set the pace for the entire voyage of discovery. The expedition crossed the Rockies and eventually followed the Columbia River to the Pacific Ocean. It brought back valuable information about the people, the geography, the plants and the animals of the West. Lewis and Clark's journey opened the way first for American fir traders and then for settlers.

Procedure

1. Have the students choose a partner.
2. Set the stage for the activity by giving the following information:
   You both are fishing along the Missouri. Your hook gets caught in some branches. As you are trying to loosen your hook, you see something shiny in the dirt. You pick it up. It is a large medallion. You excitedly show it to your friend. As you rub it to clean it off, you notice that on one side is a picture of Thomas Jefferson; the other side of the medallion is made up of crossing arms. As you are rubbing it, a mist starts to surround you. All of a sudden there are two strangers next to you, dressed in an odd manner. You and your partner are afraid yet curious. As you are about to run, one of the men speaks. "Who are you young natives? What tribe do you come from that you dress and speak so oddly?" You introduce yourselves. They in turn introduce themselves as Meriwether Lewis and William Clark. Having just finished the historical trip of the Lewis and Clark expedition in school, you realize that these two men do look like the Captains. The Captains declare that they have never seen this place before. You reply with "If you really are Lewis and Clark, surely this is the way you came along the Missouri River." Meriwether responds, "This is not like any part of the Missouri River that we ever saw." You and your partner decide to take the Captains on a new Voyage of Discovery along the Missouri. You offer to take them in your flat-bottom fishing boat. They look for the oars to help row when you laugh and explain, "We don't row. We have a motor." Now your voyage begins.
3. Give the students the following assignments:
   - Compare and contrast the geographical area along the Missouri – then and now. Explain about dikes and how they work; explain dams and their purpose.
   - Compare and contrast the wildlife along the Missouri River – then and now.
   - Describe how transportation along the Missouri has changed. Explain what necessitated that change.
   - Journal your thoughts as you ride this area. Interpret how you think Louis and Clark must feel seeing so much change. Draw images from then and now. Share stories about what they saw then and what they might have encountered in Missouri.
4. Have students share their information with the class.

Assessment Criteria

Evaluate the students using the following criteria:

- Shows knowledge of the geography of the Missouri River – then versus now
- Shows knowledge of wildlife along the Missouri River – then versus now
- Shows understanding of how Louis and Clark may have felt and reacted upon visiting Missouri in the present day
- Shared information with classmates in creative ways

Adaptation

This activity could be adapted for middle school by doing the following:

- Divide the class into teams.
- Distribute copies of the 1803 map to each team.
- Explain that they are to map the rivers and mountains of the journey in the Louisiana Purchase and the Oregon Country. Then they are to create a modern map of the U.S. and identify for the class the modern day rivers (including dams if possible), mountains, states, cities, and National Parks. They may use a reproducible map of the U.S. or make their own.
- Advise the students that each team must share responsibilities and work load because they will be graded as a team.

Score the teams on the thoroughness of their research, neatness and accuracy of finished products and involvement of all team members.

June 17, 1804
"Came too to Make ores and a Cord for a Toe Rope." Clark "Made 20 oars & 600 feet of Roap." Whitehouse.

July 2, 1804
"We made a Mast of Cotton wood to day in the Course of the evening & night it turned of a butrfull red Colour." Clark

July 4, 1804
"A great number of young geese and swan in a lake oposit to the mouth of the 4th of July Creek, in this lake are also abundance of fish of various species, the pike, catt, sunfish &c &c perch carp, or buffaloe fish." Lewis

July 8, 1804
"Proceeded on along the North Side of an Island called Nodaway Island. high well timbered land on the North Side." Ordway "This Island is Called Nadawa & is the largest I have Seen in the river, containing 7 or 8000 acres of Land Seldom overflowed." Clark

September 15, 1806
"An emence Site of pappaws & as the men were gathering them Saw a number of rattle Snakes and killed one of them and saved the skin." Ordway

September 17, 1806
"One of our party last night caught a large catfish, supposed to weigh 100 pounds". Gass

ee Online....

A new on-line course entitled "**Fundamentals of Environmental Education**" will be available to educators **February 17 of 2003**. The eight-week course will be offered via the Internet for two undergraduate or graduate level credits by the University of Wisconsin Stevens Point. The course should be valuable to current teachers, those training to be teachers, and those who work with teachers in settings like nature centers and museums. There are a variety of assignments and readings associated with the course. These include a journal with brief writing assignments, group assignments completed in cooperation with other students via the Internet, individual assignments in conjunction with each unit and a culminating assignment.

University of Wisconsin tuition for the two graduate credits is $530. Tuition for two undergraduate credits is $310. The course can also be taken as a workshop for no credit for $150. For more information, please log on to <http://www.eetap.org/eecourse> or contact Sarah Wilcox at swilc700@uwsp.edu or 715/346-4958.

Mission Statement:

The Resource is published in October, December, February and April by the Office of Environmental Education. Its purpose is to provide current information on conservation and environmental education resources and events, professional development opportunities and suggestions for integrating environmental subjects into teaching.

For a free subscription or to submit information to the newsletter write to: Office of Environmental Education, Missouri Department of Conservation, P.O. Box 180 Jefferson City, MO 65102-0180.

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